South Dakota
GAME REPORT

No. 2003 -18

2002

Annual Report

UPLAND BIRD AND WATERFOWL MANAGEMENT SURVEYS

Compiled by Corey Huxoll

Game Harvest Surveys Coordinator
Planning Section/Wildlife Administration
Division of Wildlife
South Dakota Department of Game, Fish and Parks
Joe Foss Building, 523 E. Capitol Ave.
Pierre, South Dakota 57501-3182

2002 Upland Bird and Waterfowl Management Surveys

Annual Report

Prepared by Corey Huxoll from submissions by
Andy Lindbloom, RPM-Game, Region II
Ron Schauer, RPM-Game, Region III
Will Morlock, RPM-Game, Region IV
Spencer Vaa, Senior Waterfowl Biologist
Paul Mammenga: Assistant Waterfowl Biologist

Pittman-Robertson Project..... W-95-R-36
Study No. 9501.....Jobs I, I I
Study No. 9502..... Jobs I, I I
Study No. 9503.....Job I
Study No. 9504..... Job I
Study No. 9506.....Jobs I, I I
Study No. 9510.....Job I
Study No. 9521.....Job I
Date Prepared ..... November 2003

This report funded in part by Federal Aid for Wildlife Restoration

PREFACE

Data presented in this report were gathered during the 2001-2002 fiscal period under Pittman-Robertson Project W-95-R-36 for Study Number 9501, Pheasant Management Surveys, Study Number 9502, Grouse Management Surveys, Study Number 9503, Gray Partridge Management Surveys, Study Number 9504, Quail Management Surveys, Study Number 9506, Waterfowl Management Surveys, Study Number 9510, Banding and Band Recovery Analysis of Migratory Birds, and Study Number 9521, Game Bird Nesting Success Surveys. Jobs included are:

Job 9501-I	Pheasant Brood Survey
Job 9501-II	Pheasant Winter Sex Ratio Survey
Job 9502-I	Spring Grouse Survey
Job 9502-II	Prairie Grouse Harvest Survey
Job 9503-I	Gray Partridge Harvest Survey
Job 9504-I	Quail Whistle Count Survey
Job 9506-I	Surveys of Migrating and Wintering Waterfowl
Job 9506-II	Status of Giant Canada Geese Nesting in South Dakota
Job 9510-I	Banding Programs and Band Recovery Analysis
Job 9521-I	Upland Game Bird and Waterfowl Nesting Survey

Previous reports of this study include separate job reports prior to 1988-92. Harvest projections for the species corresponding to this report are available in Huxoll, C. M., 2002 Small Game, Upland Bird & Migratory Game Bird Harvest Projections, South Dakota Department of Game, Fish and Parks, Game Report No. 2003-02. Data from this report may be referenced with permission from authorized personnel of the South Dakota Department of Game, Fish and Parks. Copies of the report are available from the Department of Game, Fish and Parks, Foss Building, Pierre, South Dakota, 57501.

TABLE OF CONTENTS

APPENDICES

FIGURES

TABLES

STUDY OBJECTIVES

The objectives of this study were to obtain population and harvest data regarding upland and migratory game bird species in order to ensure their welfare while providing the maximum recreational opportunity for the public.

PHEASANT MANAGEMENT SURVEYS

JOB 9501-1 PHEASANT BROOD SURVEY, 2002

OBJECTIVES

To annually determine pheasant reproductive success, population trend and relative densities throughout the pheasant range.

NARRATIVE

Summer brood survey was accomplished by completing 106 survey routes statewide, each route is 30 miles in length (Figure 1). These surveys were conducted according to the methods outlined in the wildlife survey manual. The surveys were conducted between July 25 and August 15, 2002. Brood size data indicates success of reproduction. This data is used to develop total state pheasant population. It is also used in developing harvest and management strategies.

RESULTS AND ANALYSIS

On the 106 routes a total of 1995 adult pheasants and 1048 pheasant broods were observed (Table 1). The average brood size was determined to be 6.25 chicks per brood. A total of 8,545 pheasants were seen in 3180 miles surveyed, resulting in 2.69 bird per mile surveyed.

Job leader: Will Morlock, Regional Wildlife Manager, Watertown, SD 605/882-5200.

JOB 9501-11 PHEASANT WINTER SEX RATIO SURVEY, 2002-2003

OBJECTIVES

To annually determine winter sex ratios of pheasant populations throughout the range.

NARRATIVE

The sex ratio survey will indicate the degree of harvest attained the previous hunting season and comparing this ratio with the ideal ratio of 15 males to 100 females. The data is collected throughout the range from the close of the pheasant season through March 31, 2003. The data is collected according to the methods outlined in the wildlife survey manual. Any males, in excess of the ideal ratio, indicate under utilization of surplus birds.

RESULTS AND ANALYSIS

A total of 3,333 rooster pheasants and 9,338 hen pheasants were counted. The total of 12,721 birds exceeds the number required in the study outline. A ratio of 35.5 males to 100 females was the result of the survey. This exceeds the ideal of 15 males to 100 females, indicating an under-harvest of surplus male pheasants.

Job leader: Will Morlock, Regional Wildlife Manager, Watertown, SD 605/882-5200.

GROUSE MANAGEMENT SURVEYS

JOB 9502-1 SPRING GROUSE SURVEY, 2002

OBJECTIVES

To annually obtain an index of the abundance of breeding grouse throughout the main prairie grouse range.

NARRATIVE

Department cooperators conducted surveys of 87 sharp-tailed grouse leks covering 858 square miles on 21 established survey areas and 35 prairie chicken leks covering 440 square miles on 11 established routes throughout the main prairie grouse range between 15 March and 30 May, 2002. Surveys were conducted under favorable weather conditions and good data were received. The preceding winter of 2001-2002 was mostly "open" with less snow coverage and milder temperatures than average.

RESULTS AND ANALYSIS

Survey data of sharp-tailed grouse leks gathered in 2002 averaged 1.03 males per square mile, demonstrating an overall 72% increase from 2001 (Figure 2, Tables 2 and 3). Ten of the 21 (48%) sharp-tailed grouse lek routes showed increases in male grouse per square mile when compared to 2001. Greater prairie chicken lek surveys, however, averaged 0.43 males per square mile, an overall 39% decrease in 2002 (Figure 3, Tables 4 and 5). Only 3 of the 11 (27%) prairie chicken lek routes showed increases, whereas 7 (64%) of the routes showed an average 59% decrease in males per square mile.

Following the mild winter conditions of 2001-2002, increases in lek survey results were mostly expected for both sharp-tailed grouse and prairie chickens, although the unknown effects of severe drought on lekking grouse somewhat confounded this prediction. Although numbers of sharp-tailed grouse increased, prairie chickens did not. The average number of prairie chicken males observed on leks over the last 20 years is only 0.6 per square mile, however, which is probably not substantially different than results seen in 2002. Regardless, data and trends will continue to be collected and studied in following years to assure sustainable populations of prairie chickens.

Job Leader: Andy Lindbloom, Regional Wildlife Manager, 605-223-7709.

JOB 9502-I1 PRAIRIE GROUSE HARVEST SURVEY, 2002

OBJECTIVES

To annually determine prairie grouse reproductive success and species composition of harvest.

NARRATIVE

The 2002 harvest field survey for sharp-tailed grouse and prairie chicken consisted of collecting grouse characteristics data from hunter-harvested birds. Data were collected primarily from Conservation Officer Bag checks throughout the hunting season, but other department personnel also gathered data from wings of harvested birds voluntarily submitted by hunters. In addition, the Fort Pierre National Grassland personnel, primarily by means of wing collection barrels, also collected and submitted data.

RESULTS AND ANALYSIS

Only 326 wings were submitted throughout the 2002 harvest survey period (Table 6). Fort Pierre National Grassland office submitted data from 66 sharp-tailed grouse wings and 103 prairie chicken wings. Field checks and wings collected from other sources yielded an additional 89 sharp-tailed grouse wings and 68 prairie chicken wings for sexing and aging data. The 2002 young/adult ratio of sharp-tailed grouse was 0.54, substantially lower than the 2.06 ratio in 2001. The 2002 prairie chicken young/adult ratio was 1.39, which was also below the 1.8 ratio in 2001.

The drop in young/adult ratios of both sharp-tailed grouse and prairie chickens was most likely attributable to unseasonably hot, dry weather that occurred throughout most of the prairie grouse range. This weather pattern of drought persisted the entire spring and summer, and had visible impacts on vegetative cover across the state. The lack of hiding cover presumably had negative impacts on nesting success and brood survival of most upland game bird species, as was also witnessed in decreased trends in survey results of species other than sharp-tailed grouse and prairie chickens. The severe drought conditions also affected moisture availability and invertebrate food sources, putting additional stresses on young prairie grouse.

Harvest data from submitted prairie grouse wings in 2002 also demonstrated a male/female harvest ratio in prairie chickens of 1.38, and a male/female harvest ratio of 1.04 in sharp-tail grouse. In the 2001 survey, the male/female ratios for prairie chickens and sharp-tailed grouse were 1.35 and 1.27 respectively.

Job Leader Andy Lindbloom, Regional Wildlife Manager, 605-223-7709.

PARTRIDGE MANAGEMENT SURVEYS

JOB 9503-1 GRAY PARTRIDGE HARVEST SURVEY, 2002

OBJECTIVES

To annually determine fall partridge age and sex ratios, and relative abundance.

NARRATIVE

The 2002 harvest field survey for gray partridge consisted of collecting partridge sex and age data from hunter-harvested birds. Data were to be collected primarily from Conservation Officer Bag checks throughout the hunting season, but other department personnel also have traditionally gathered data from wings of harvested birds voluntarily submitted by hunters.

RESULTS AND ANALYSIS

No partridge harvest data were submitted for analyses in 2002. Adequate sample sizes have plagued this survey for many years, this year being the worst. The department should continue to search for other effective and feasible means of gathering partridge population trend data.

Job Leader. Andy Lindbloom, Regional Wildlife Manager, 605-223-7709.

QUAIL MANAGEMENT SURVEYS

JOB 9504-1 QUAIL WHISTLE COUNT SURVEY, 2002

OBJECTIVES

To determine population status of whistling male bobwhite quail annually throughout the main quail range in South Dakota.

NARRATIVE

The Whistling Count Survey was conducted in 8 counties in southeastern and south central South Dakota. A total of 13 established routes are surveyed by Conservation Officers between June 20 and July 15. This survey is the primary indicator for annual breeding populations of quail in the state.

RESULTS AND ANALYSIS

The 2002 Whistle Count Survey showed a 7% increase in males from the 2001 survey (Table 7). A total of 15 quail were recorded in 2002, compared to 14 in 2001. This represents a small increase over last year, but is still well below the long-term average of about 36 birds (Figure 4, Table 8). The mild winter of 2001-2002 was the reason for the increase.

Job Leader. Ron Schauer, Regional Wildlife Manager (605) 362-2700.

WATERFOWL MANAGEMENT SURVEYS

JOB 9506-1 SURVEYS OF MIGRATING AND WINTERING WATERFOWL, 2002

OBJECTIVES

To annually measure waterfowl use of the Missouri River and vicinity during the fall migration and to determine the temporal and geographic distribution of waterfowl on Missouri River impoundments.

NARRATIVE

Eight aerial surveys with varying coverage of the Missouri River from the ND-SD state line to Sioux City, Iowa were accomplished from October 30 - December 17, 2002. In addition, the river system from the ND-SD state line to Sioux City, Iowa was surveyed the first week in January during the January winter waterfowl survey. No photographic flights were accomplished this year. These surveys are the most efficient way to determine waterfowl use of the Missouri River system during the fall and winter. The data is used to provide information to the public on concentrations of waterfowl and to develop harvest and management strategies.

RESULTS AND ANALYSIS

The peak population for geese during the 8 aerial surveys was the flight of December 12 when 482,350 Canada geese were counted. The peak population for ducks occurred on the same flight when 434,350 ducks, primarily mallards, were counted. This is a high count for mallards and Canada geese. The mid-December all-goose survey has been discontinued by the Central Flyway and is not conducted any more. The January winter waterfowl survey along the Missouri River revealed 352,665 Canada geese and 220,258 ducks, primarily mallards. The January survey had a high number of Canada geese and mallards this year, due to the mild weather.

Job Leader: Spencer Vaa, Senior Wildlife Biologist, 605-688-4786

JOB 9506-11 STATUS OF GIANT CANADA GEESE NESTING IN SOUTH DAKOTA, 2002

OBJECTIVES

To annually monitor status and production of the giant Canada goose breeding population in South Dakota.

NARRATIVE

Wetland areas important to nesting giant Canada geese are normally surveyed annually by air in northeast and east central South Dakota. This survey indicates breeding pairs and is conducted during late April and early May.

RESULTS AND ANALYSIS

The aerial survey was not flown in 2002 due to extreme flooding of the survey areas. The 2002 FWS May Breeding Population and Habitat Survey for South Dakota indicated a giant Canada goose breeding population index of 88,700 birds.

Job Leader. Paul Mammenga, Assistant Waterfowl Biologist, 605-626-2391

BANDING AND BAND RECOVERY ANALYSIS OF MIGRATORY BIRDS

JOB 9590-1 BANDING PROGRAMS AND BAND RECOVERY ANALYSIS, 2002

OBJECTIVES

To annually band migratory birds common to South Dakota and to determine migratory bird species movement, harvest patterns, mortality rates and other pertinent information from band recoveries.

NARRATIVE

Giant Canada geese were banded in Brown, Aurora, Codington, Brookings, Kingsbury, Day, Lake and McPherson counties.

RESULTS AND ANALYSIS

One thousand one hundred six (1,106) giant Canada geese were banded in South Dakota in 2002. Banded geese included McPherson-21, Day-181, Kingsbury-98, Brookings-153, Codington-524, Lake-92, Aurora-25, and Brown-12.

In addition, SD GF&P personnel took part in a pre-season duck-banding project in McPherson County. The Department provided $4,611.00 to the Central Flyway for the project this year plus hundreds of man-hours of assistance. Rocket nets and swim-in traps were used to band 1,586 ducks during August and September (Table 9). This total included 807 pintails and 761 mallards.

Job Leader: Paul Mammenga, Assistant Waterfowl Biologist, 605-626-2391

GAME BIRD NESTING SUCCESS SURVEYS

JOB 9521-1 UPLAND GAME BIRD AND WATERFOWL NESTING SURVEY, 2002

OBJECTIVES

To annually determine nesting success for various upland game birds and waterfowl, and to evaluate effects of land-use, predators and weather conditions on nesting success.

NARRATIVE

Various types of waterfowl nest structures were monitored in 11 counties in eastern South Dakota to determine occupancy rate and nest success. Waterfowl nest success was monitored on 4 areas where a trapper removed predators during the time period of April 1 - July 1. Due to extremely high water, the electric fences at Bitter Lake in Day County and Twin Lakes in Spink County have been destroyed and one no longer is operation. Also, the exclosure fence at Scatterwood Lake in Faulk County has been abandoned, as we have been unable to keep predators, including raptors, from the enclosed area.

RESULTS AND ANALYSIS

Twenty-three (23) culverts located in Brookings, Hamlin, Day, McPherson and Brown counties contained 19 mallard nests and 20 Canada goose nests. Nest success on mallards was 84% and for Canada geese it was 95%. Most of the unsuccessful nests were due to abandonment from high water levels or human disturbance.

One hundred seventy-eight (178) mallard baskets with fiberglass cover-tops located in Brookings, Brown, Kingsbury, Marshall, Hamlin, Codington, Edmunds, Spink, and McPherson counties had 97 mallard nests and success was 93%.

In addition, 175 mallard cylinders, commonly known as hen houses, were monitored in Hamlin, Brookings, Deuel, McPherson, and Codington County. These contained 116 mallard nests and 1 wood duck nest and 92% were successful. It appears that our nest structure program is working well in South Dakota and the effort to equip all open mallard baskets with cover-tops is complete. We are also consolidating structures on fewer areas to facilitate monitoring and maintenance efforts.

The 4 GPA's where DU projects have been completed (peninsula cut-offs, islands, electric fences, etc.) along with predator control work during the nesting season in 2002 had varying results. Areas where predators effectively were kept from the nests in 2002 include Johnson Slough in Hamlin County and Horseshoe Lake in Codington County. The electric barrier fence was replaced in 2000 on Horseshoe Lake. The predator exclosure fence on Scatterwood was discontinued in 1999 and the Thompson GPA electric fence was discontinued in 2000.

Production was poor on the electric fenced area of the Hogsback on Lake Albert and the Lake Albert Island. Predators are proving to be very difficult to control on these two areas.

Job Leader: Spencer Vaa, Senior Wildlife Biologist, 605-688-4786

STUDY SUMMARIES

INTRODUCTION

Increasing recruitment rates of prairie nesting ducks is essential to the success of the North American Waterfowl Management Plan. The goal of the Plan is to attain a fall flight of 100 million ducks under average environmental conditions. The size of the 2002 mid-continent mallard breeding population, which is comprised of mallards from the traditional survey area and the states of Minnesota, Wisconsin, and Michigan declined slightly from 2001 (8.7 million to 8.5 million). Breeding population estimates for green-winged teal, gadwall, and shoveler remained above their respective long-term averages (LTA) while scaup, canvasback, wigeon, and pintail remained well below their LTA. Mallard, redhead and blue-winged teal were similar to their LTA. Total May ponds (in the U.S. prairies and prairie and parkland Canada combined) were the second lowest (2.7 million) since 1974, when this estimate was first recorded. The mid-continent mallard fall-flight index for 2002 is estimated to be 8.9 million birds compared to 9.7 million in 2001. The total duck fall-flight index is no longer computed by the FWS. Habitat conditions in 2002 were very dry in Montana and southern prairie Canada. However, the eastern Dakotas were in decent shape. To attain the fall flight goal, land management practices favorable to nesting ducks must be implemented on both public and private land. This report deals with results of field work conducted in eastern South Dakota during 2002. Studies centered on duck nest success on areas where predators were controlled and the use of various types of nest structures by ducks and Canada geese. In addition, a summary of the 2002 pre-season duck-banding program is included. Studies were funded by the Department of Game, Fish and Parks under federal code 9521 and 9510. Wildlife Division personnel in Technical Services and Operations collected data for the project.

STUDY AREA

A sample of nests (generally a minimum of 10-20) was located at a number of sites where intensive management to increase duck production is carried out. On some of these sites a trapper attempted to keep the area predator free by conducting predator removal during April 1 to July 1. In 2002, sites worked on included the following: peninsula cut-off at Johnson Slough in Hamlin County, Hogsback electric fence and Lake Albert island in Kingsbury County, and Horseshoe electric fence in Codington County.

Useable culverts, cylinders, and mallard nest baskets with overhead cover were located in the following counties for 2002: Brookings, Brown, Codington, Deuel, Edmunds, Hamlin, Kingsbury, Marshall, and McPherson. These were monitored for occupancy and nest success.

The pre-season duck-banding program, in cooperation with the FWS and Central Flyway, took place on various sites in McPherson County during August and September, although baiting and site preparation started in July.

METHODS

Areas where nests were located were searched on foot by 1-2 people using willow sticks in order to assess management efforts/predator control work. Initial searches took place in May and were rechecked for nest success in June and July.

All nests were revisited at least once to determine fate. A nest was considered successful if at least one egg hatched. Nests with no sign of eggs, shells or membranes or with scattered or eaten shells were classified as destroyed. Nests containing whole eggs that had ceased development were recorded as abandoned.

Apparent nest success was calculated by dividing the number of successful nests by the number of nests for which a fate was determined.

Predator control during April 1 to July 1 was accomplished by a trapper using box traps, leg hold traps, snares, and firearms. Areas trapped in 2002 included Johnson Slough, Hogsback and Horseshoe Lake. On the Lake Albert Island, a fox den was smoked out but this was after most of the damage had already occurred.

Paul Mammenga, Mark Grovijahn and Spencer Vaa checked culverts and mallard baskets containing overhead cover with the use of an Argo machine, by boat and chest waders.

RESULTS

DU Projects With Predator Control

A sample of nests (minimum of 10-20) was located on 4 areas to assess waterfowl production. These areas included the Hogsback, Johnson Slough, Lake Albert Island and Horseshoe Lake. Nest samples were obtained during early to late May and were rechecked in June. It should be noted that a systematic search to find all nests on these sites was not the goal; rather, a sample of nests were located to assess waterfowl production on sites where a trapper attempted to remove all predators from the site.

The Johnson slough peninsula cutoff in Hamlin County had good production in 2002. A sample of 57 nests, all mallards, were located on May 15 and June 14. Thirty-nine of the nests were successful, 4 abandoned, and 14 appeared to be predated. High water in recent years has reduced the area available to nesting hens. This site is important to nesting giant Canada geese as evidenced by the large number of goose nests (over 60) present this year. At least 50 of the Canada goose nests were successful. Eight raccoon, 2 mink, and 1 skunk were removed from the area (Table 10).

On the Hogsback of Lake Albert, eighteen nests were located on May 14. All the nests were mallards and only 3 were successful, 14 predated, and 1 not relocated. The electric fence on this site was replaced during the fall of 1997 and operational for the 1998 season. Two raccoon, 4 skunks, 2 mink, and 1 woodchuck, 2 gophers and 1 beaver were removed (Table 10). This area usually has a high density of mallards nesting on it each season, but this year due to heavy predation there were markedly fewer nesters. Mink were the major problem.

On the Lake Albert Island in Kingsbury County (20 acres), zero mallard nests were located on May 14. There was an active fox den on the island and no ducks were nesting. The island did have a number of successful Canada goose nests.

On Horseshoe Lake in Codington County, twenty-two duck nests, all mallard except for 1 pintail, 1 shoveler, 1 scaup, and 1 blue-winged teal, were located on May 25. Nineteen were successful and 3 predated. This area is being inundated by high water. Very few scaup were present this year-only one nest. In previous years this has been an important area for nesting scaup. Two mink, 1 raccoon, and 4 13-line ground squirrels were removed. Sixty-six goose nests were located on Horseshoe.

Use of Culverts by Ducks and Canada Geese

A fair year for duck/Canada goose production occurred on culverts in 2002 (Table 11). Twenty-three culverts with fiberglass partitions in Brown and Brookings counties resulted in 19 mallard and 20 Canada goose nests. Apparent nest success was 84% for ducks and 95% for Canada geese. High water levels/ice damage has caused problems to many nest structures, especially in the Bitter Lake and Redetzke GPA area in Day County. We are also having some problems with horned owls and are installing owl guards.

Use of Baskets with Cover Tops by Ducks

One hundred seventy-eight (178) mallard baskets with fiberglass cover-tops in 9 counties resulted in 97 nests and 93% success (Table 12). Putting a cover-top on a regular mallard basket is a great way to increase the occupancy rate and all of our mallard baskets now have fiberglass cover tops installed. We are consolidating our nest structures on fewer wetlands to facilitate monitoring and maintenance.

Mallard Cylinders

One hundred seventy-five (175) cylinders in 5 counties resulted in 117 nests with 92% success (Table 13). All were mallard nests except for 1 wood duck nest. Mallards seek the overhead cover provided by the cylinders and they are among the best type of structures available.

Due to high water levels, 2002 was another difficult year for nest structures in South Dakota. A special thanks to all who placed, maintained, or monitored the structures and especially to Paul and Mark for taking the lead in this endeavor.

CONCLUSIONS

The predator control work carried out at the DU project sites on Horseshoe Lake and Johnson Slough resulted in generally good duck and goose production in 2002. Mallard cylinders were especially productive nest structures this year. However, horned owls are becoming a problem, especially at Oakwood Lakes. Horseshoe Lake now has a new electric fence but needs lower water levels.

The bottom line is we can make a difference in the population of local mallards by using various types of structures. The emphasis will continue to be focused on mallards.

The best uses of this data are:

1) To provide information about waterfowl production on Department lands to GF&P personnel.

2) Encourage WCO's and others to submit proposals for waterfowl habitat projects.

3) Evaluate effectiveness of DU projects.

4) Evaluate effectiveness of trapping on specific sites.

5) Evaluate effectiveness of nest structures.

APPENDICES

FIGURES

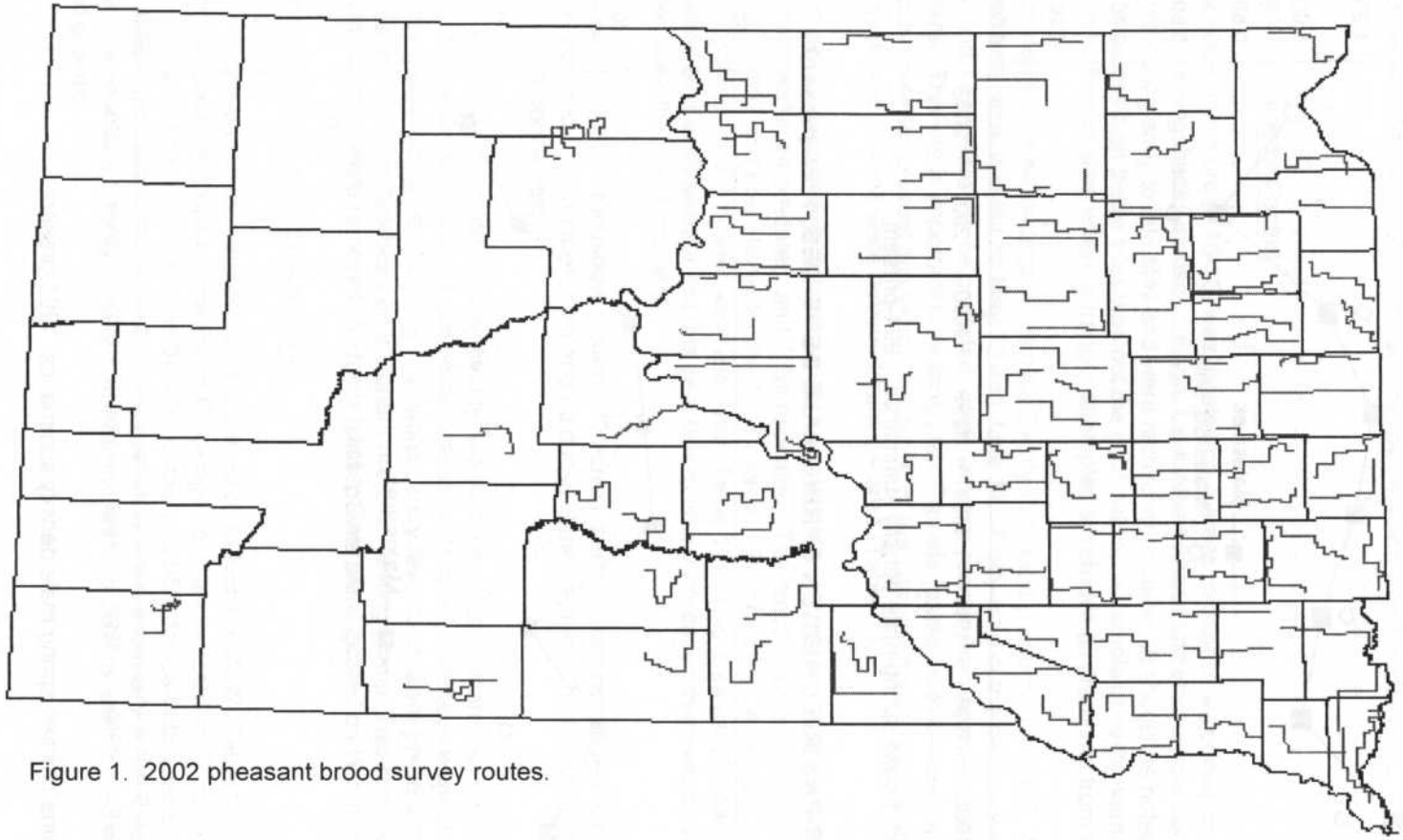

Figure 1. 2002 pheasant brood survey routes.

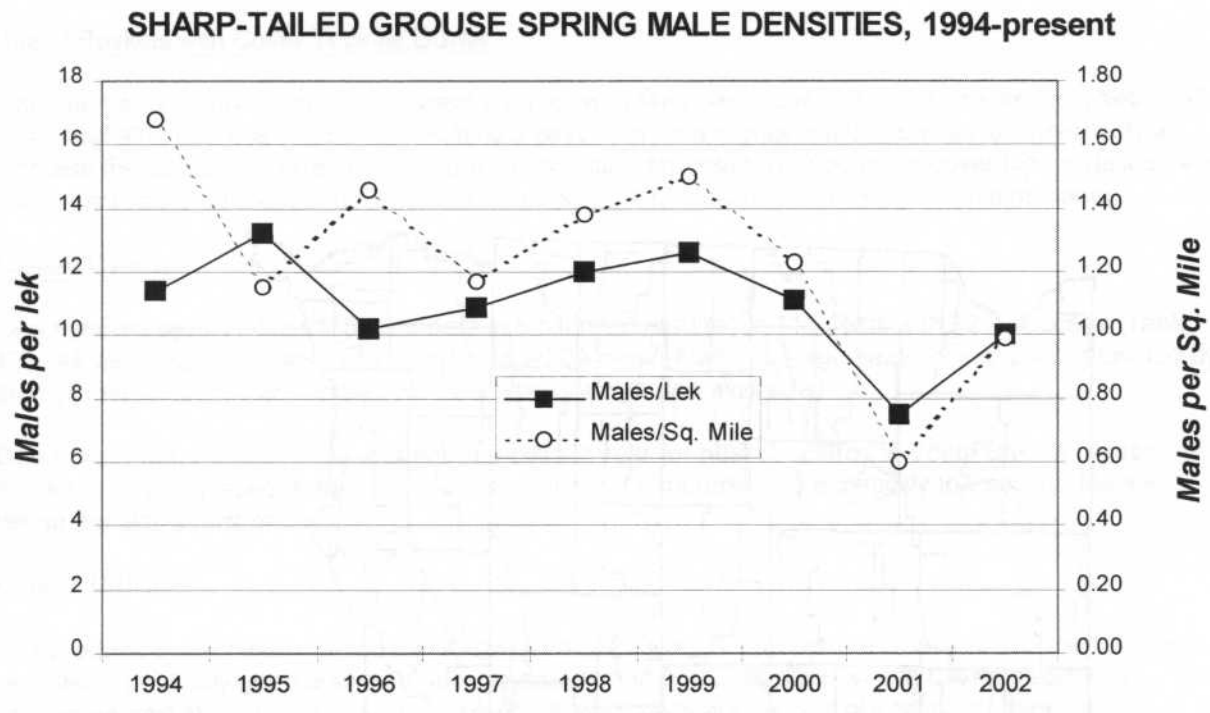

Figure 2. Sharp-tailed grouse spring male density summaries, 1994-present.

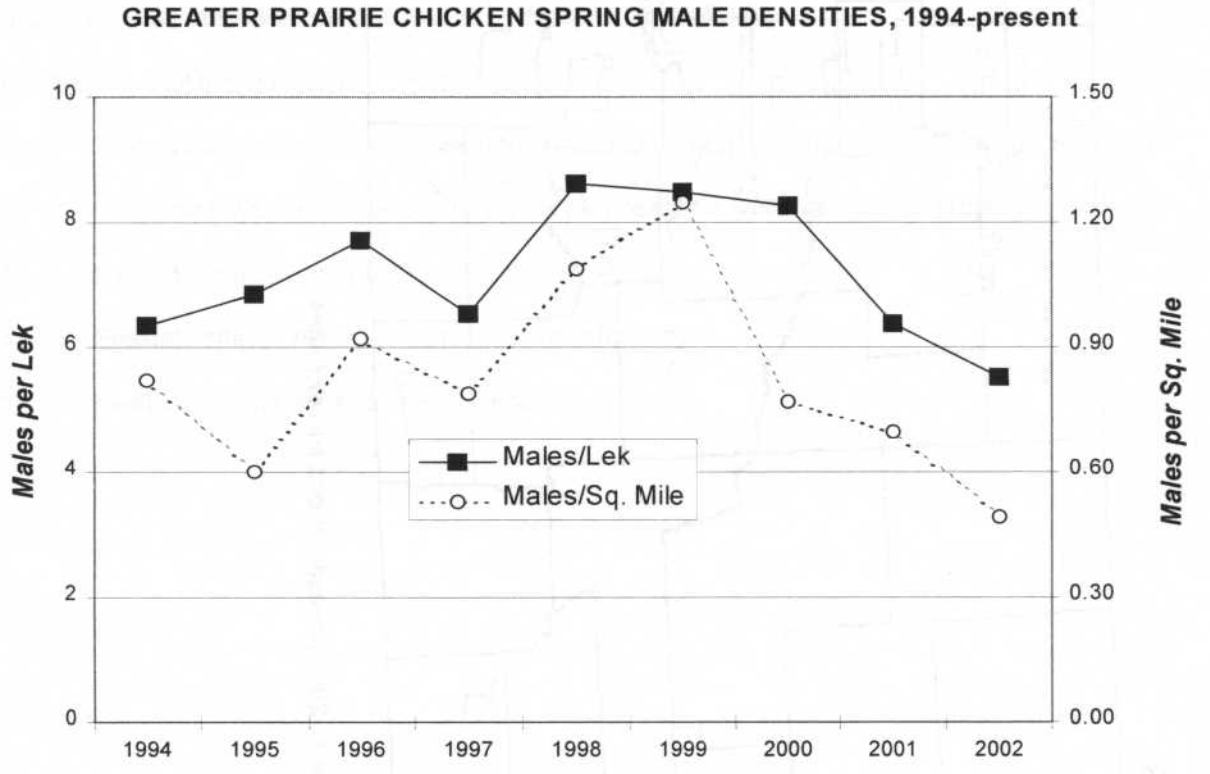

Figure 3. Greater prairie chicken spring male density summaries, 1994-present.

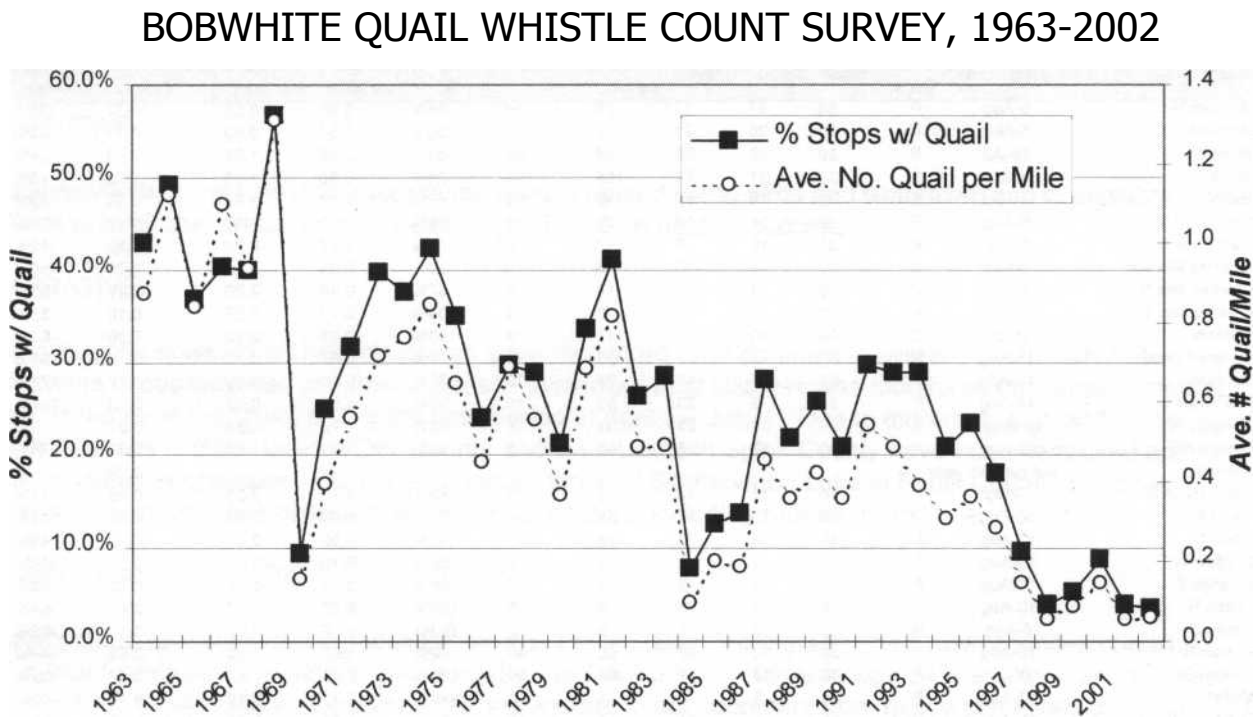

Figure 4. Bobwhite Quail Whistle Count Survey, 1963-2002.

TABLES

Table 1. 2002 pheasant brood survey route results.
Regions I & 2

Route	Date Run	Data Type	Miles	Cocks	Hens	Total Adults	Hens w/young No.	Hens w/young %	Adults per mile	Broods per mile	Broods/Mile (2001)	Percent Change
Bennett N	*6-Aug*	*P*	*30*	*11*	*17*	*28*	*16*	*94%*	*0.93*	*0.53*	*0.27*	*100%*
Bennett S	*5-Aug*	*P*	*30*	*26*	*21*	*47*	*19*	*90%*	*1.57*	*0.63*	*0.33*	*90%*
Brule N	*29-Jul*	*P*	*30*	*22*	*62*	*84*	*52*	*84%*	*2.80*	*1.73*	*2.43*	*-29%*
Brule S	*30-Jul*	*S*	*30*	*31*	*74*	*105*	*58*	*78%*	*3.50*	*1.93*	*1.83*	*5%*
Buffalo	*31-Jul*	*S*	*30*	*15*	*17*	*32*	*8*	*47%*	*1.07*	*027*	*0.33*	*-20%*
Campbell N	*9-Aug*	*P*	*30*	*14*	*14*	*28*	*12*	*86%*	*0.93*	*0.40*	*0.47*	*-14%*
Campbell S	*8-Aug*	*P*	*30*	*10*	*7*	*17*	*6*	*86%*	*0.57*	*0.20*	*0.50*	*-60%*
Charles Mix Mid	*3-Aug*	*S*	*30*	*6*	*10*	*16*	*3*	*30%*	*0.53*	*0.10*	*0.20*	*-50%*
Charles Mix N	*4-Aug*	*S*	*30*	*3*	*9*	*12*	*6*	*67%*	*0.40*	*0.20*	*0.27*	*-25%*
Charles Mix S	*10-Aug*	*P*	*30*	*3*	*2*	*5*	*2*	*100%*	*0.17*	*0.07*	*0.10*	*-33%*
Corson	*31-Jul*	*S*	*30*	*10*	*7*	*17*	*3*	*43%*	*0.57*	*0.10*	*0.30*	*-67%*
Dewey-Corson	*13-Aug*	*P*	*30*	*13*	*7*	*20*	*5*	*71%*	*0.67*	*0.17*	*0.10*	*67%*
Douglas	*13-Aug*	*P*	*30*	*8*	*16*	*24*	*10*	*63%*	*0.80*	*0.33*	*1.17*	*-71%*
Fall River	*14-Aug*	*P*	*30*	*9*	*23*	*32*	*19*	*83%*	*1.07*	*0.63*	*0.30*	*111%*
Gregory N	*4-Aug*	*S*	*30*	*10*	*23*	*33*	*19*	*83%*	*1.10*	*0.63*	*0.67*	*-5%*
Gregory S	*13-Aug*	*P*	*30*	*12*	*35*	*47*	*33*	*94%*	*1.57*	*1.10*	*0.63*	*74%*
Haakon	*not run this year*										*0.23*	
Hand Hyde S	*9-Aug*	*P*	*30*	*10*	*12*	*22*	*10*	*83%*	*0.73*	*0.33*	*0.30*	*11%*
Hand Mid	*13-Aug*	*P*	*30*	*23*	*32*	*55*	*24*	*75%*	*1.83*	*0.80*	*0.37*	*118%*
Hand N	*13-Aug*	*P*	*30*	*8*	*20*	*28*	*16*	*80%*	*0.93*	*0.53*	*0.37*	*45%*
Hughes N	*10-Aug*	*P*	*30*	*1*	*2*	*3*	*1*	*50%*	*0.10*	*0.03*	*0.23*	*-86%*
Hughes S	*13-Aug*	*P*	*30*	*5*	*2*	*7*	*2*	*100%*	*0.23*	*0.07*	*0.53*	*-88%*
Jones N	*10-Aug*	*P*	*30*	*3*	*5*	*8*	*5*	*100%*	*027*	*0.17*	*0.47*	***-64%***
Jones S	*8-Aug*	*P*	*30*	*3*	*2*	*5*	*2*	*100%*	*0.17*	*0.07*	*0.37*	*-82%*
Lyman N	*13-Aug*	*P*	*30*	*10*	*40*	*50*	*40*	*100%*	*1.67*	*1.33*	*2.63*	***-49%***
Lyman S	*27-Jul*	*P*	*30*	*18*	*50*	*68*	*50*	*100%*	*2.27*	*1.67*	*2.43*	*-32%*
Mellette	*13-Aug*	*P*	*30*	*2*	*3*	*5*	*3*	*100%*	*0.17*	*0.10*	*0.17*	*-40%*
Potter Mid	*10-Aug*	*P*	*30*	*5*	*14*	*19*	*10*	*71%*	*0.63*	*0.33*	*0.67*	*-50%*
Potter N	*9-Aug*	*S*	*30*	*4*	*5*	*9*	*4*	*80%*	*0.30*	*0.13*	*0.27*	*-50%*
Potter S	*13-Aug*	*P*	*30*	*4*	*5*	*9*	*4*	*80%*	*0.30*	*0.13*	*0.30*	*-56%*
Stanley	*5-Aug*	*P*	*30*	*0*	*1*	*1*	*1*	*100%*	*0.03*	*0.03*	*0.07*	*-50%*
Sully N	*10-Aug*	*P*	*30*	*6*	*10*	*16*	*9*	*90%*	*0.53*	*0.30*	*0.40*	*-25%*
Sully S	*11-Aug*	*P*	*30*	*7*	*4*	*11*	*3*	*75%*	*0.37*	*0.10*	*0.40*	*-75%*
Todd	*13-Aug*	S	*30*	*3*	*3*	*6*	*2*	*67%*	*0.20*	*0.07*	*0.13*	*-50%*
Tripp N	*6-Aug*	*P*	*30*	*17*	*36*	*53*	*30*	*83%*	*1.77*	*1.00*	*1.50*	*-33%*
Tripp S	*8-Aug*	*S'*	*30*	*3*	*4*	*7*	*2*	*50%*	*0.23*	*0.07*	*0.10*	*-33%*
Walworth E	*13-Aug*	*P*	*30*	*2*	*4*	*6*	*3*	*75%*	*0.20*	*0.10*	*0.30*	*-67%*
Walworth W	*2-Aug*	*P*	*30*	*7*	*12*	*19*	*11*	*92%*	*0.63*	*0.37*	*0.27*	*38%*
			1110	*344*	*610*	*954*	*503*	*82/o*	*0.86*	*0.45*	*0.45*	*0%*

prepared by Andy Lindbloom

Average Brood Size/Hen 2001: ***6.24***

Birds per mile 2001: ***4.8***

Average Brood Size/Hen: ***5.6***

Number **of** chicks: *2,817*

Number **of** ***pheasants:*** *3,771*

Birds per mile: ***3.40***

Table 1. 2002 pheasant brood survey route results (cont'd).
Region 3

Route	Date Run	Data Type	Miles	Cocks	Hens	Total Adults	Hens w/young No.	Hens w/young %	Adults per mile	Broods per Mile	Broods/We (2001)	Percent change
Aurora-Brule (1)	2-Aug	S	30	6	14	20	13	93	0.67	0.43	1.07	-60
Aurora (M)	9-Aug	P	30	19	41	60	36	88	2	1.2	2.17	-45%
Beadle (N)	11-Aug	P	30	2	13	15	8	61	0.5	0.27	0.27	1%
Beadle (S)	29-Jul	P	30	27	39	66	28	72	2.2	0.93	0.93	0%
Beadle (E) New	11-Aug	P	30	1	8	9	5	62	0.3	0.17	0.33	-49%
Beadle (W) New	29-Jul	P	30	9	33	42	13	39	1.4	0.43	0.47	-8%
Bon Homme (N)	29-Jul	P	30	2	1	3	1	100	0.1	0.03	0.00	
Bon Homme (S)	15-Aug	S	30	0	1	1	1	100	0.03	0.03	0.00	
Brookings (N)	29-Jul	P	30	6	21	27	21	100	0.9	0.7	0.47	50%
Brookings (M)	28-Jul	S	30	8	20	28	16	80	0.93	0.53	0.33	59
Brookings (S) New	29-Jul	P	30	5	11	16	10	91	0.53	0.33	0.20	65%
Clay-Union	13-Aug	P	25	3	0	3	0	0	0.12	0	0.16	-100%
Davison-Hanson (N)	14-Aug	P	30	2	3	5	2	67	0.17	0.07	0.27	-74%
Davison (S)	4-Aug	P	30	5	1	6	1	100	0.2	0.03	0.33	-91%
Hutchinson-Turner (N)	2-Aug	P	30	1	0	1	0	0	0.03	0	0.07	-100%
Hutchinson-Turner (S)	4-Aug	P	30	5	6	11	6	100	0.37	0.2	0.03	500%
Hutchinson (W)	7-Aug	P	30	3	3	6	3	100	0.2	0.1	0.13	-25%
Jerauld (S)	7-Aug	S	30	11	16	27	16	100	0.9	0.53	0.13	298%
Jerauld (N) New	13-Aug	P	30	10	12	**22**	10	83	0.73	0.33	0.33	-1
Kingsbury (N)	13-Aug	P	30	5	11	16	10	91	0.53	0.33	0.13	148%
Kingsbury (S)	9-Aug	P	30	2	3	5	3	100	0.17	0.1	0.07	50%
Lake (N)	29-Jul	P	30	3	6	9	5	83	0.3	0.17	0.20	-15%
Lake (S)	13-Aug	P	30	3	3	6	3	100	0.2	0.1	0.03	200%
Lincoln-Turner	4-Aug	P	30	0	3	3	3	100	0.1	0.1	0.10	0%
Lincoln-Union New	2-Aug	P	30	3	2	5	2	100	0.17	0.07	0.10	-30%
McCook (N)	15-Aug	P	27	1	5	6	4	80	0.2	0.15	0.11	35%
McCook (S)	14-Aug	P	30	2	2	4	1	50	0.13	0.03	0.03	-10%
Miner (N)	10-Aug	P	30	12	18	30	12	67	1	0.4	0.53	-25%
Miner (S)	13-Aug	P	30	9	29	38	23	79	1.27	0.77	0.60	28%
Minnehaha (N)	13-Aug	P	30	5	8	13	8	100	0.43	0.27	0.20	35%
Minnehaha (W)	14-Aug	P	30	3	10	13	7	70	0.43	0.23	0.10	130%
Minnehaha (E) New	13-Aug	P	30	3	9	12	8	89	0.4	0.27	0.20	35%
Moody (N)	29-Jul	P	30	7	6	13	6	100	0.43	0.2	0.23	-14%
Moody (S)	26-Jul	P	30	7	8	15	6	75	0.5	0.2	0.10	100%
Sanborn Study (N)	13-Aug	P	30	8	22	30	17	77	1	0.57	0.63	-10%
Sanborn (M)	10-Aug	P	30	16	40	56	31	77	1.87	1.03	0.83	24%
Union (N) New	14-Aug	P	30	1	4	5	4	100	0.17	0.13	0.13	-2%
Union (S)	9-Aug	P	30	3	2	5	2	100	0.17	0.06	0.00	
Yankton	2-Aug	P	30	0	0	0	0	0	0	0	0.13	-100%
TOTALS		P=35 S= 4	1,162	218	434	652	345	79	0.56	0.3	0.31	-4%

prepared by. Ron Schauer

Average Brood Size/Hen 2001: **7.15**

Average Brood Size/Hen: **6.4**

Number *of chicks:* **2,208**

Number *of* pheasants: **2,860**

Birds per mile 2001: **2.83**

Birds per mile: **2.46**

Table 1. 2002 pheasant brood survey route results (cont'd).
Region 4

Route	Date Run	Type	Miles	Cocks	Hens	Total Adults	Hens w/young No.	%	Adults per mile	Broods per Mile	Broods/Mile (2001)	Percent change
Brown N	13-Aug	P	30	4	12	16	11	92%	0.53	0.37	0 33	11
Brown Mid	10-Aug	S	30	8	7	15	7	100%	0 50	0 23	0.10	133
Brown S	16-Aug	P	30	4	7	11	6	86%	0.37	020	0.87	-77%
Codington N	13-Aug	P	30	4	12	16	11	92%	0.53	0.37	0.13	176%
Codington Mid	10-Aug	P	30	0	3	3	3	100%	0.10	0.10	0.07	49%
Codington S	30-Jul	P	30	2	10	12	10	100%	0.40	0.33	0.17	100%
Clark N	2-Aug	P	30	2	3	5	3	100%	0.17	0.10	0.00	
Clark Mid	10-Aug	P	30	5	2	7	1	50%	0.23	0.03	0.03	1%
Clark S	10-Aug	P	30	6	15	21	13	87%	0.70	0.43	0.23	86%
Day N	10-Aug	P	30	1	1	2	1	100%	0.07	0.03	0.03	1%
Day Mid	No longer being run											
Day S	11-Aug	P	30	4	15	19	13	87%	0.63	0.43	0.27	60%
Deuel N	29-Jul	P	30	2	2	4	2	100%	0.13	0.07	0.03	102%
Deuel S	13-Aug	P	30	3	4	7	4	100%	0.23	0.13	0.00	
Edmunds N	13-Aug	P	30	17	17	34	13	76%	1.13	0.43	0.47	-8%
Edmunds S	10-Aug	P	30	10	22	32	16	73%	1.07	0.53	0.93	-43%
Faulk N	2-Aug	P	30	17	10	27	4	40%	0.90	0.13	0.23	-42%
Faulk S	27-Jul	P	30	2	2	4	2	100%	0.13	0.07	0.07	0%
Grant Mid	9-Aug	P	30	0	2	2	2	100%	0.07	0.07	0.00	
Hamlin/Codington N	10-Aug	P	30	5	10	15	9	90%	0.50	0.30	0.10	200%
Hamlin M	2-Aug	P	30	4	9	13	9	100%	0.43	0.30	0.17	80%
Hamlin S	29-Jul	P	30	8	17	25	14	82%	0.83	0.47	0.23	100%
McPherson S	11-Aug	P	30	3	5	8	1	20%	0.27	0.03	0.17	-80%
Marshall S	10-Aug	P	30	4	5	9	5	100%	0.30	0.17	0.07	149%
Roberts N	13-Aug	P	30	0	2	2	2	100%	0.07	0.07	0.00	
Roberts Mid	No longer being run											
Roberts S	5-Aug	P	30	6	1	7	1	100%	0.23	0.03	0.00	
Spink N	9-Aug	S	30	5	4	9	3	75%	0.30	0.10	0.13	-25%
Spink Mid	29-Jul	P	30	4	11	15	11	100%	0.50	0.37	0.23	57%
Spink S	13-Aug	P	30	7	6	13	4	67%	0.43	0.13	0.30	-56%
McPherson N"	8-Aug	P	30	1	7	8	5	71%	0.43	0.17	0.23	-28%
Spink XX"	9-Aug	P	30	13	15	28	14	93%	0.93	0.47	0.07	597%
Totals			900	151	238	389	200	84.03/o	0.43	0.22	0.19	17/o

New Routes

prepared by: Will Morlock

Average Brood Size/Hen 2001: **8.22**
Average Brood Size/Hen: **7.33**
Number of chicks: **1,466**
Number of pheasants: **1,855**
Birds per mile 2001: 1.96
Birds per mile: 2.06

Statewide	Date Run	Data Type	Miles	Cocks	Hens	Total Adults	Hens w/young No.	%	Adults per mile	Broods per Mile	Broods/Mile (2001)
Totals			3,172	713	1,282	1,995	1,048	82%	0.63	0.33	0.38

Average Brood Size/Hen 2001: **6.76**
Average Brood Size/Hen: **6.25**
Number of chicks: **6,550**
Number of pheasants: **8,545**
Birds per mile 2001: **3.26**
Birds per mile: **2.69**

Table 2. 2002 sharp-tailed grouse spring breeding population density.

2002 SHARP-TAILED GROUSE SPRING BREEDING POPULATION DENSITY

County/Route	square Miles	trounds Counted	males Counted	Ave. # Males per Ground	rounds per Sq. Mile	Males per Sq. Mile	% Uhange from 2001
Beadle	40	1	12	12.0	0.03	0.30	-45%
Bennett	40	11	99	9.0	0.28	2.48	
Buffalo	40	0	0	0.0	0.00	0.00	
Butte	countywide	1	12	12.0	-	-	
Campbell	-	-	-	-	-	-	
Charles Mix	36	5	46	9.2	0.14	1.28	70%
Corson	-	-	-	-	-	-	
Corson-Dewey	-	-	-	-	-	-	
Dewey	-	-	-	-	-	-	
Fall River	countywide	-	-	-	-	-	
Ft. Pierre NG	40	2	4	2.0	0.05	0.10	-79%
Gregory	24	14	119	8.5	0.58	4.96	98%
Haakon	41	7	54	7.7	0.17	1.32	
Harding	countywide	8	112	14.0	-	-	
Jackson	40	5	31	6.2	0.13	0.78	
Jerauld-Aurora	40	1	16	16.0	0.03	0.40	
Jones	40	2	16	8.0	0.05	0.40	21%
Jones-Stanley	40	1	2	2.0	0.03	0.05	
Meade	41	4	60	15.0	0.10	1.46	115%
Mellette	40	2	13	6.5	0.05	0.33	306%
Pennington	40	8	100	12.5	0.20	2.50	121%
Perkins	-	-	-	-	-	-	
Stanley	46	4	30	7.5	0.09	0.65	-4%
Todd	40	2	21	10.5	0.05	0.53	50%
Tripp	36	1	5	5.0	0.03	0.14	131
Ziebach	40	3	68	22.7	0.08	1.70	105%
STATEWIDE	**704**	**82**	**820**	**10.0**	**0.12**	**0.99**	**65/6**

Table 3. Sharp-tailed grouse males per lek, 1994-present.

SHARP-TAILED GROUSE MALES PER LEK, 1994-present

Year	Leks	Males	Males/Lek	Males/Sq. Mile
1994	94	1,074	11.43	1.68
1995	39	514	13.18	1.15
1996	98	1,001	10.21	1.46
1997	58	631	10.88	1.17
1998	87	1,045	12.01	1.38
1999	87	1,095	12.59	1.50
2000	91	1,010	11.10	1.23
2001	68	510	7.50	0.60
2002	82	820	10.00	0.99
TOTALS	**704**	**7,700**	**10.94**	**1.37**

Table 4. 2002 greater prairie chicken spring breeding population density.

2002 GREATER PRAIRIE CHICKEN SPRING BREEDING POPULATION DENSITY

County/Route	Square Miles	Grounds Counted	Males Counted	Ave. # Males per Ground	Grounds per Sq. Mile	Males per Sq. Mile	% Change from 2001
Beadle	40	0	0	0.0	0.00	0.00	
Buffalo	40	3	28	9.3	0.08	0.70	-59%
Charles Mix	36	6	38	6.3	0.17	1.06	
Ft.Pierre NG	40	7	38	5.4	0.18	0.95	-60%
Gregory	24	5	15	3.0	0.21	0.63	4%
Hughes-Hyde	40	2	5	2.5	0.05	0.13	
Jerauld-Aurora	40	2	5	2.5	0.05	0.13	-76%
Jones	40	3	28	9.3	0.08	0.70	775%
Jones-Stanley	40	1	8	8.0	0.03	0.20	0%
Lyman	28	7	52	7.4	0.25	1.86	55%
Stanley	46	1	3	3.0	0.02	0.07	-88%
Todd	40	4	11	2.8	0.10	0.28	-21
Tripp	36	2	7	3.5	0.06	0.19	143%
TOTALS	**490**	**43**	**238**	**5.5**	**0.09**	**0.49**	-31%

Table 5. Greater prairie chicken males per lek, 1994-present.

GREATER PRAIRIE CHICKEN MALES PER LEK, 1994-present

Year	Leks	Males	Males/Lek	Males/Sq. Mile
1994	46	293	6.37	0.82
1995	30	206	6.87	0.60
1996	50	385	7.70	0.92
1997	33	216	6.55	0.79
1998	54	466	8.63	1.09
1999	67	568	8.48	1.25
2000	41	339	8.27	0.77
2001	48	306	6.38	0.70
2002	43	238	5.53	0.49
TOTALS	412	**3,017**	7.32	

Table 6. Prairie Grouse wing data from Ft. Pierre National Grassland, 1992-present.

PRAIRIE GROUSE WING DATA - FT PIERRE NATIONAL GRASSLAND

		Prairie Chickens			**Sharp-tails**			
Year	Total # Wings	# Wings	% Wings	J:A Ratio	# Wings	% Wings	J:A Ratio	Both J:A Ratio
1992	259	141	54%	2.44	118	46%	2.47	2.46
1993	445	271	61%	2.76	174	39%	3.05	2.90
1994	770	390	51%	2.61	380	**49%**	2.52	2.56
1995	980	681	69%	2.57	299	31%	2.69	2.63
1996	637	389	61%	2.54	248	39%	2.44	2.50
1997	622	374	60%	2.43	248	40%	2.02	2.26
1998	881	549	62%	2.31	332	38%	2.35	2.32
1999	1,045	610	58%	2.23	435	**42%**	2.48	2.33
2000	859	524	61%	1.76	335	39%	2.28	1.94
2001	565	371	66%	1.90	194	34%	2.46	2.07
2002	169	103	61%	0.49	66	39%	0.83	0.61

Table 7. 2002 Bobwhite Whistle Count Survey.

2002 BOBWHITE WHISTLE COUNT SUMMARY

Last Revised: 09/25/2002

County	Route	# Stops	# Stops w/ Quail	% Stops w/ Quail	Total Quail Whistling	# Quail / Stop	Type Data	% Change from Last Year	WCO
Gregory	1	20	1	500.0%	2	0.10	S	200	Lengkeek
Gregory	2	20	2	1000.0%	4	0.20	S	25	Lengkeek
Charles Mix	1	20	1	500.0%	2	0.10	S	-75	Flor
Clay	1	20	1	500.0%	1	0.05	P	100	Petry
Clay	3	20	1	500.0%	2	0.10	P	200	Petry
Union	2	20	0	0.0%	0	0.00	P	0	Petry
Union	3	20	0	0.0%	0	0.00	S	0	Petry
Lincoln	1	20	1	500.0%	1	0.05	P	100	Schauer
Bon Homme	1	20	1	500.0%	2	0.10	S	200	Crownover
Bon Homme	2	20	0	0.0%	0	0.00	P	0	Crownover
Yankton	1	20	0	0.0%	0	0.00	P	0	Alban
Yankton	2	20	0	0.0%	0	0.00	P	-300	Alban
Tripp	1	20	1	500.0%	1	0.05	P	0	Padmore
TOTALS		260	9	3.5	15	0.06	**P=8 S=5**	0.07	

Table 8. Quail Whistle Count Survey Summary 1963-present

BOBWHITE QUAIL WHISTLE COUNT SURVEY

Year	# Stops	#Stops w/ Quail	% Stops w/ Quail	Total # Birds Heard	Ave. No. Quail per Mile	% Primary Data
1963	235	101	43.0%	205	0.9	74
1964	220	108	49.1%	246	1.1	73
1965	320	118	36.9%	269	0.8	50
1966	240	97	40.4%	263	1.1	83
1967	200	80	40.0%	187	0.9	80
1968	275	156	56.7%	360	1.3	93
1969	370	35	9.5%	58	0.2	56
1970	312	78	25.0%	123	0.4	100
1971	300	95	31.7%	168	0.6	100
1972	300	119	39.7%	215	0.7	100
1973	300	113	37.7%	228	0.8	100
1974	300	127	42.3%	253	0.8	100
1975	300	105	35.0%	194	0.6	67
1976	300	72	24.0%	135	0.5	67
1977	300	89	29.7%	207	0.7	80
1978	300	87	29.0%	167	0.6	100
1979	300	64	21.3%	110	0.4	100
1980	300	101	33.7%	205	0.7	100
1981	260	107	41.2%	213	0.8	92
1982	300	79	26.3%	146	0.5	60
1983	280	80	28.6%	138	0.5	57
1984	240	19	7.9%	23	0.1	100
1985	280	35	12.5%	56	0.2	86
1986	260	36	13.8%	49	0.2	76
1987	260	73	28.1%	118	0.5	100
1988	260	57	21.9%	93	0.4	77
1989	260	67	25.8%	110	0.4	77
1990	260	54	20.8%	93	0.4	85
1991	260	77	29.6%	141	0.5	77
1992	260	75	28.8%	126	0.5	77
1993	260	75	28.8%	102	0.4	69
1994	240	50	20.8%	74	0.3	50
1995	260	61	23.5%	94	0.4	69
1996	260	47	18.1%	74	0.3	69
1997	260	25	9.6%	38	0.1	69
1998	260	10	3.8%	14	0.1	77
1999	260	14	5.4%	23	0.1	77
2000	260	23	8.8%	38	0.1	77
2001	260	10	3.8%	14	0.1	61
2002	260	9	3.5%	15	0.1	61

Table 9. Pre-season (1 August - 13 September 2002) duck banding summary. Banding performed under permit 06897 in McPherson County.

	Male			Female			
Species	**AHY**	**HY**	**LOCAL**	**AHY**	**HY**	**LOCAL**	**Total**
Mallard	281	135	7	212	120	6	761
Gadwall	0	0	0	2	0	0	2
Green-winged teal	1	0	0	0	0	0	1
American black duck	1	0	0	0	0	0	1
Northern pintail	52	289	0	112	354	0	807
Wood duck	9	0	0	0	2	0	11
American widgeon	1	1	0	0	0	0	2
Redhead	0	0	0	1	0	0	1
Total	345	425	7	327	476	6	1,586

Table 10. Predators removed from waterfowl nest success study areas, 1 April - 1 July 2002.

Area	**Raccoon**	**Skunk**	**Fox**	**Beaver**	**Coyote**	**Mink**	**Ground Squirrel**	**Weasel**	**Woodchuck**	**Badger**	**Total**
Hogsback	2	4	0	1	0	2	2	0	1	0	12
Johnson Slough	8	1	0	0	0	2	0	0	0	0	11
Moe Slough	1	0	0	0	0	2	4	0	0	0	7
Totals	**11**	**5**	**0**	**1**	**0**	**6**	**6**	**0**	**1**	**0**	**30**

Table 11. South Dakota culvert nesting structures with fiberglass cover partitions, 2002.

			MALLARDS		**CANADA GEESE**	
COUNTY	# CULVERTS	# USED	# NESTS	# SUCCESSFUL	# NESTS	# SUCCESSFUL
Day	0	0	0	0	0	0
Brown	12	7/58%	8	5/63%	12	12/100%
McPherson	0	0	0	0	0	0
Hamlin	0	0	0	0	0	0
Brookings	11	9/82%	11	11/100%	8	7/88%
TOTALS	23	16/70%	19	16/84%	20	19/95%

Table 12. South Dakota mallard baskets with fiberglass cover-tops, 2002.

REGION 3	**# BASKETS**	**# USED/%**	**# NESTS**	**# SUCCESSFUL/%**
Brookings	34	15/44%	18	17/94%
Kingsbury	25	10/40%	10	10/100%
TOTALS	59	25/42%	28	27/96%

REGION 4	**# BASKETS**	**# USED/%**	**# NESTS**	**# SUCCESSFUL/%**
Brown	57	23/40%	24	23/96%
Codington	5	2/40%	2	2/100%
Hamlin	29	22/76%	23	21/91
Marshall	18	12/67%	12	9/75%
Spink	3	1/33%	1	1/100%
McPherson	5	4/80%	5	5/100%
Edmunds	2	2/100%	2	2/100%
TOTALS	119	66/53%	69	63/91
GRAND TOTAL	178	91/51%	97	90/93%

Table 13. South Dakota mallard cylinders, 2002.

COUNTY	# CYLINDERS	# USED/%	# NESTS	# SUCCESSFUL/%
McPherson	10	4/40%	4	3/75%
Brookings	1	0	0	0
Hamlin	91	66/73%	67*	62/93%
Codington	52	32/62%	34	31/91
Deuel	21	11/52%	12	12/100%
TOTALS	175	113/65%	117	108/92%

*1 of the nests in Hamlin County was a wood duck.